



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,871	02/20/2004	Piero Patrone Bonissone	52493.000365	5127

6147 7590 02/19/2009
GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

VEZERIS, JAMES A

ART UNIT	PAPER NUMBER
----------	--------------

3693

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

02/19/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ldocket@crd.ge.com
rosssr@crd.ge.com
parkskl@crd.ge.com

Office Action Summary	Application No. 10/781,871	Applicant(s) BONISSONE ET AL.	
	Examiner JAMES A. VEZERIS	Art Unit 3693	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-9,13-17,20,21,26,30 and 33-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-9,13-17,20,21,26,30 and 33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/3/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

Final Action

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Applicant's Arguments

2. Applicant's arguments, see page 8, filed 7/03/2008, with respect to the 35 U.S.C. 112 2nd rejections of claims 1, 9, 10, 12, 16, 26, 31, 32, 34, and 35, concerning the phrase "local tradeoffs", have been fully considered and are persuasive. The rejections of claims 1, 9, 10, 12, 16, 26, 31, 32, 34, and 35 have been withdrawn.
3. Applicant's arguments, see page 8, filed 7/03/2008, with respect to the objection of claim 34 have been fully considered and are persuasive. The rejection of claim 8 has been withdrawn.
4. Applicant's arguments, see page 8, filed 7/03/2008, with respect to the 35 U.S.C. 112 2nd rejections of claims 9, 10, 12, and 30, concerning the phrase "most important"

Art Unit: 3693

and "second most important tradeoff", have been fully considered and are persuasive do to the deletion of the wording in claims 9 and 30, and the cancellation of claims 10 and 12. The rejection of claims 9, 10, 12, and 30 has been withdrawn.

5. Applicant's arguments, see page 8, filed 7/03/2008, with respect to claims 11, 18, and 19 have been fully considered and are persuasive. The rejections of claims 11, 18, and 19 have been cancelled; therefore the rejection has been withdrawn.

6. Applicant's arguments with respect to the rejections of claims 1-35, under 102 and 103, have been considered but are moot in view of the new ground(s) of rejection.

7. Claims 2-4, 10-12, 18-19, 22-25, 27-29, and 31-32 are cancelled.

8. Claims 1, 5-9, 13-17, 20-21, 26, 30, and 33-35 are pending.

Response to Applicant's Traversal

9. Applicant's election with traverse of Group 1 in the reply filed on 11/24/2008 is acknowledged. The traversal is on the ground(s) that the groups should not be restricted due to similar subject matter. This is found persuasive. All pending claims will be examined.

Claim Rejections- 35 U.S.C. 103(a)

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 5-9, 13-15, 17, 20-21, 26, 30, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PG-Pub 2004/0186804 to Chakraborty et al. (Hereinafter "Chakraborty") in view of "Genetic Algorithms and Genetic Programming in Computational Finance" by Shu-Heng Chen (Hereinafter "Chen") in further view of US PG-Pub 2001/0032029 to Kauffman. (Hereinafter "Kauffman")

Regarding Claims 1 and 26.

Chakraborty teaches multi-objective portfolio analysis and decision-making using visualization techniques the method sequentially comprising:

generating a non-dominated solution set comprising an efficient frontier in an original portfolio performance space having at least three-dimensions by using a computing device; (See Figure 8, Paragraph 90)

imposing a sequence of user-specified constraints in at least one of the original portfolio performance space and a portfolio configuration space to reduce solutions in the non-dominated solution set to an initial solution subset; (See Paragraphs 92-140, specifically 94 and 125)

Chakraborty fails to further teach using one of an evolutionary algorithm and optimization processing; and

executing a sequence of Pareto filters in a user-specified order on regions of a lower dimensional portfolio performance space having fewer dimensions than the original portfolio performance space to produce a resulting solution subset having a

Art Unit: 3693

fewer number of points than the initial solution subset, the resulting solution subset being used in investment decisioning.

Chen teaches using one of an evolutionary algorithm and optimization processing; (See Chen page 223-224 section 1)

Kauffman teaches executing a sequence of Pareto filters in a user-specified order on regions of a lower dimensional portfolio performance space having fewer dimensions than the original portfolio performance space to produce a resulting solution subset having a fewer number of points than the initial solution subset, the resulting solution subset being used in investment decisioning. (See Paragraph 474)

It would have been obvious to one of ordinary skill in the art to include in the system of Chakraborty the ability to use evolutionary algorithms as well as Pareto filters as taught by Chen and Kauffman, respectively, since the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Regarding Claim 5.

Chakraborty further teaches the user-specified constraints is defined by limits on performance metrics. (See Figure 4, Figure 6, Paragraph 24)

Regarding Claim 6.

Chakraborty further teaches the performance metrics include risk and return. (See Paragraph 24, 166-167)

Regarding Claim 7.

Chakraborty further teaches the user-specified -constraints include imposing a lower limit on return and an upper limit on risk. (See Paragraph 170)

Regarding Claim 8.

Chakraborty further teaches the user-specified constraints include imposing a first range on return and a second range on risk. (See Paragraph 170)

Regarding Claims 9 and 30.

Chakraborty further teaches:

applying additional user-specified constraints to the resulting solution subset to produce a final selection. (See Paragraph 170)

Regarding Claim 13.

Chakraborty further teaches:

imposing preferences on the resulting solution subset to produce a final selection.

Regarding Claim 14.

Chakraborty further teaches the preferences are represented by relative weights on performance metrics. (See Paragraph 94)

Regarding Claim 15.

Chakraborty further teaches the preferences are represented by relative weights on performance configuration metrics. (See Paragraph 94)

Regarding Claim 17.

Chakraborty further teaches after the imposing step, the method further includes:
applying portfolio configuration metrics based on a plurality of asset allocations in

Art Unit: 3693

a portfolio; and

comparing portfolio configuration metrics between a plurality of portfolios. (See Paragraph 95-96)

Regarding Claim 20.

Chakraborty further teaches determining a required transaction to transform the plurality of asset allocations in a currently existing portfolio to a plurality of asset allocations in each of the portfolios in the resulting solution subset. (Paragraph 157)

Regarding Claim 21.

Chakraborty further teaches the user-specified constraints are one of independent and dependent constraints. (See Paragraphs 92-140, specifically 94 and 125)

Regarding Claim 33.

Chakraborty further teaches the additional user-specific constraints are based on structure metrics. (See Paragraph 98)

Regarding Claim 34.

Chakraborty teaches:

a first portion that generates a non-dominated solution set comprising an efficient frontier in an original portfolio performance space having at least three- dimensions; (See Figure 8, Paragraph 90)

a second portion that imposes a sequence of user- specified constraints in at least one of the original portfolio performance space and a portfolio configuration space to reduce solutions in the non-dominated solution set to an initial solution subset; (See

Paragraphs 92-140, specifically 94 and 125)

a fourth portion, and after the resulting solution subset has been produced by the third portion, the fourth portion applies additional user-specified constraints to the resulting solution subset to produce a final selection, the final selection being used in investment decisioning. (See Figure 4, Figure 6, Paragraph 24)

Chakraborty fails to teach:

using one of an evolutionary algorithm and optimization processing;

a third portion that executes a series of Pareto filters in a user-specified order on regions of a lower dimensional portfolio performance space having fewer dimensions than the original portfolio performance space to produce a resulting solution subset having a fewer number of points than the initial solution subset

Chen teaches using one of an evolutionary algorithm and optimization processing; (See Chen page 223-224 section 1)

Kauffman teaches executing a sequence of Pareto filters in a user-specified order on regions of a lower dimensional portfolio performance space having fewer dimensions than the original portfolio performance space to produce a resulting solution subset having a fewer number of points than the initial solution subset. (See Paragraph 474)

It would have been obvious to one of ordinary skill in the art to include in the system of Chakraborty the ability to use evolutionary algorithms as well as Pareto filters as taught by Chen and Kauffman, respectively, since the claimed invention is merely a combination of old elements, and in the combination each element merely would have

Art Unit: 3693

performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Regarding Claim 35.

Chakraborty teaches:

generating a non-dominated solution set comprising an efficient frontier in an original portfolio performance space having at least three- dimensions by using a computing device; (See Figure 8, Paragraph 90)

imposing a sequence of user-specified constraints in at least one of the original portfolio performance space and a portfolio configuration space to reduce solutions in the non-dominated solution set to an initial solution subset; (See Paragraphs 92-140, specifically 94 and 125)

applying portfolio configuration metrics based on a plurality of asset allocations in a portfolio; and

comparing portfolio configuration metrics between a plurality of portfolios. (See Paragraph 95-96)

Chakraborty fails to further teaches:

using one of an evolutionary algorithm and optimization processing

executing a series of Pareto filters in a user-specific order on regions of a lower dimensional portfolio performance space having fewer dimensions than the original portfolio performance space to produce a resulting solution subset having a fewer number of points than the initial solution subset, the resulting solution subset being used in investment decisioning; (See Paragraph 474)

wherein the executing the sequence of Pareto filters is performed in performance configuration space; (See Paragraph 474)

It would have been obvious to one of ordinary skill in the art to include in the system of Chakraborty the ability to use evolutionary algorithms as well as Pareto filters as taught by Chen and Kauffman, respectively, since the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES A. VEZERIS whose telephone number is (571)270-1580. The examiner can normally be reached on Monday-alt. Fridays 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Kramer can be reached on 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3693

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A. Kramer/
Supervisory Patent Examiner, Art Unit 3693

/JAMES A VEZERIS/
Examiner, Art Unit 3693

2/11/2009